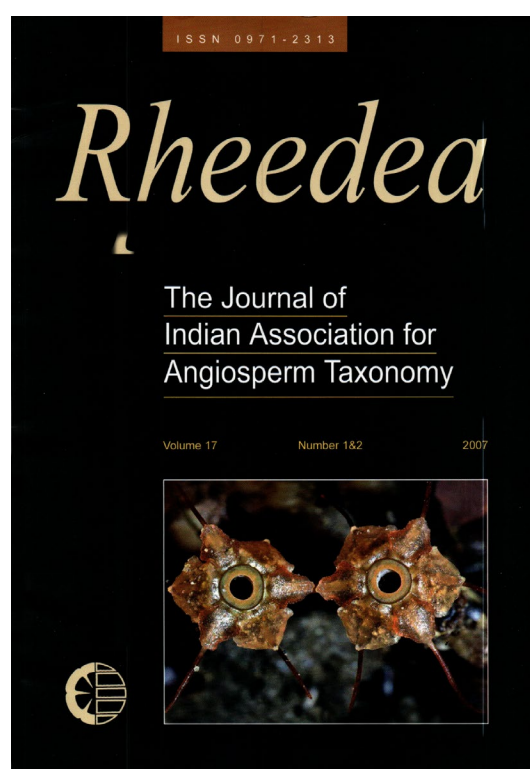




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Thismia annamensis and *Thismia tentaculata*, Two New Species of Thismiaceae from Central Vietnam

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Abstract

Two new species of the genus *Thismia* Griff. (Thismiaceae), *T. annamensis* (Sect. *Euthismia* Schlechter, Subsect. *Odoardoa* Schlechter) and *T. tentaculata* (Sect. *Euthismia* Schlechter, Subsect. *Brunonithismia* Jonk.) are described and illustrated. Both were discovered recently in lowland areas of central Vietnam and represent important additions to the flora of this country.

Keywords: *Thismia annamensis*, *Thismia tentaculata*, New species, Vietnam

Introduction

The genus *Thismia* Griff. (Thismiaceae) includes about 30 species distributed mainly in the tropical zone of Asia and America with a few species in subtropical and temperate areas of North America, Japan, China (Taiwan), New Zealand and Tasmania (Ridley, 1924; Jonker, 1948; Yang *et al.*, 2002; Tsukaya & Okada, 2005). The highest species diversity of the genus is found in Southeast Asia including the Malay Peninsula, Sumatra, Java and Kalimantan. Only two species of the genus (*Thismia javanica* J. J. Smith and *T. mirabilis* K. Larsen) have previously been reported from the Indochinese Peninsula (Larsen, 1965; Pham-Hoang Ho, 2000). Two additional species discovered recently during field explorations of last years in central Vietnam are described below as new for science. Both species are rare plants known, up to now, only from type localities in central Vietnam. Noteworthy, that all species of *Thismia* are easily overlooked in botanical explorations due to their dwarf habit and ephemeral character of flowers. It may be reasonable to expect, for both discovered species, a wider distribution in Indochina and existence of further undescribed species of the genus in this area.

Newly discovered taxa

Thismia annamensis K. Larsen *et* Aver., *sp. nov.*

Figs 1, 2

T. racemosae Ridley affinis, a qua differt caule simplice, pedicellis longioribus, floribus duplo majoribus, tubo perianthii pyriforme, lobis sepalorum late rhombeis, lobis petalorum anguste rhombeis, lobis stigmatibus angustis, ligulatis, ad apicem bidentatis.

Type: VIETNAM, **Dak Nong** Prov., *Dak Glong* Distr., Dak Plao Municipality, the territory of Ta Dung Nature Reserve, steep hill slopes at elevation 700-750 m., around point 11° 51' 47" N 107° 56' 59" E, 4 November 2005. L. Averyanov, T.V. Thao, N.T. Vinh, HLF 5510 (Holotype, LE). d-EXSICCATES OF VIETNAMESE FLORA 0036/HLF 5510.

Small achlorophyllous mycotrophic herb. Roots a few, white to yellowish-gray, fleshy, branching, vermiform, clustering along short horizontal rhizome bearing 1-3 orthotropic stems. *Stem* light yellowish-brown, simple, glabrous, erect or ascending, 6-9 cm tall with many imbricate bract-like leaves and 1-7 flowers in loose terminal cincinnus. *Leaves and floral bracts* light yellowish-brown, narrowly triangular to narrowly ovate, acute, adpressed to the stem, 4-12 mm long, 0.8-5 mm wide. *Pedicel* white, 8-28 mm long, conical; pedicel and ovary longitudinally finely grooved and irregularly dentate along ribs. *Flowers* actinomorphic, urceolate, of 6 tepals fused to form a basal perianth tube, free apically; below the flowers

2-3 bracts forming loose involucre; perianth tube pyriform, 10-14 mm long, 8-11 mm wide near the apex, chestnut-brown, longitudinally finely grooved with 12 low rough deep brown ribs, inside with longitudinal bars connected by many short transverse bars, at the apex with narrow, prominent, fleshy, olive-brown annulus; free parts of perianth lobes rhomboid; outer lobes broadly rhomboid, 6-8 mm

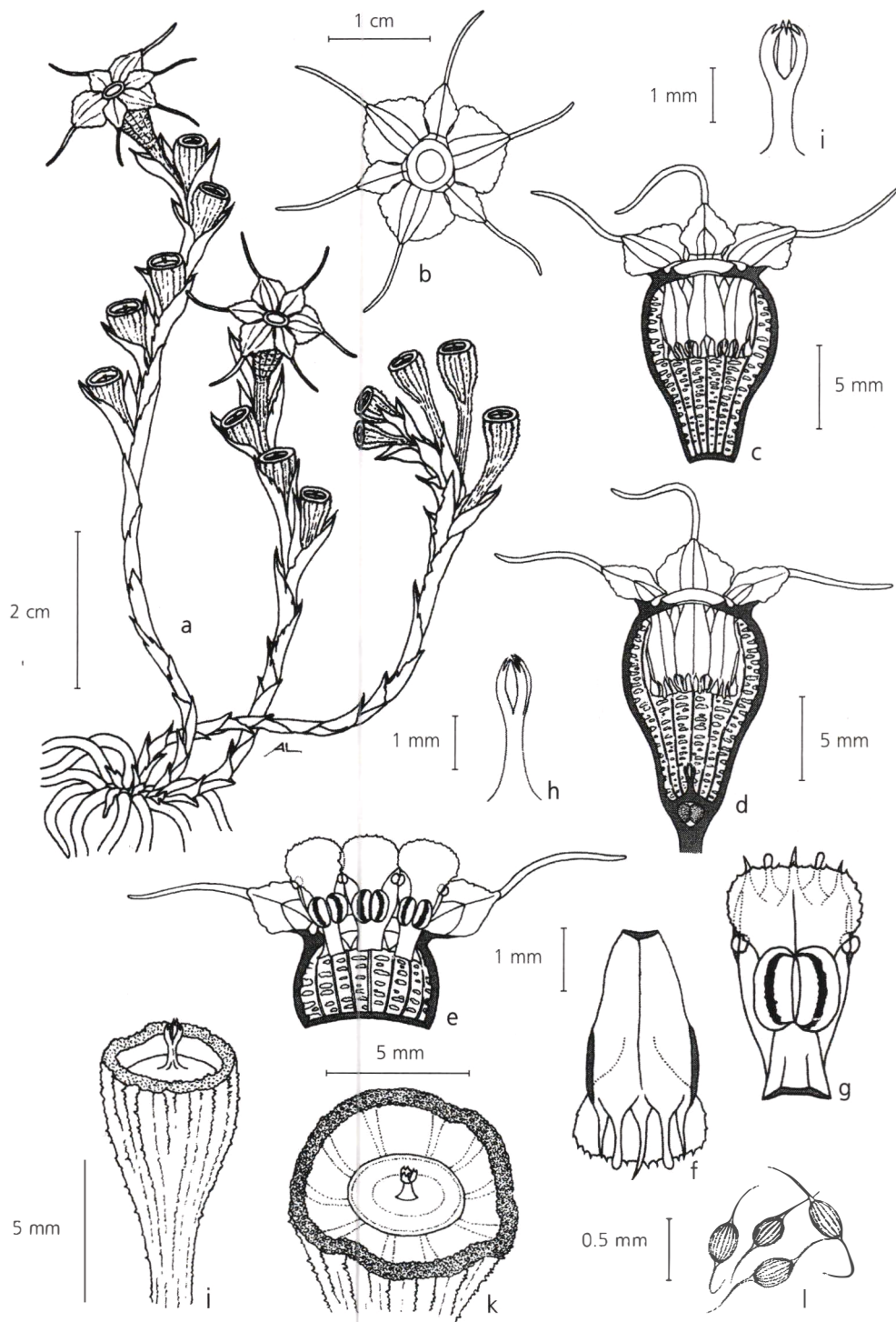


Figure 1. *Thismia annamensis* K.Larsen et Aver. – a. Flowering plant; b. Flower, view from top; c, d. Longitudinal section of flower; e. Longitudinal section of flower with recurved half of stamen tube; f. Stamen, dorsal surface (turned in flower inside); g. Stamen, ventral surface (turned in flower outside); h, i. Style in ovary (h) and in ripening fruit (i); j. Ripening fruit; k. Apex of ripening fruit; l. Seeds (all drawn from the type by Leonid V. Averyanov).



Figure 2. *Thismia annamensis* K.Larsen et Aver. – a-c. Flowering plant; d,e. Flowers, view from top; f. Longitudinal section of flower and ovary; g, h. Fruits on different stages of maturation, view from top; i. Fruits, side view; j. Bases of stems and roots (all photographs made from the type by Leonid V. Averyanov).

long and broad; inner lobes narrowly rhomboid, 7-9 mm long, 3-4 mm wide; both outer and inner lobes irregularly finely crenulate along margin, terminated at the apex into straight or slightly arcuate filiform process, 6.5-9 mm long; filaments 6, arising from thickened margin of the perianth tube, down curved, connate together into an anther tube 4-5.5 mm long, hanging at an annulus in the perianth throat; individual filaments whitish, hyaline, broad, ribbon-like, at the apex with 5 narrow tooth-like processes (among them 2 obtusely clavate and 3 acuminate), bearing at the middle large anther with two thecae and laterally with two small round glands; on inner side of filament, below anther, with broadly cordate petaloid appendage, wider than stamen, finely denticulate along margin; style black, slender, short, 2-2.5 mm long, cylindrical, persistent, bearing at apex 3 narrow ligulate, bidentate, incurved and converging, glabrous stigma-lobes; ovary deep brown to black, broadly obconical, 4-6 mm long; the 3 placentas inserted parietally in the basal part of the ovary. *Fruit* deep brown to black, fleshy cupule, crowned by the persistent, fleshy, basal ring of the perianth tube and the style with stigmas; seeds light yellowish-brown, ellipsoid, 0.3-0.35 mm long, with long narrow processes of testa at poles.

Etymology: Species name refers to area of its distribution, which includes mainly lowland and montane regions of central Vietnam (Annam).

Flowering: October-November.

Habitat: Secondary open broad-leaved evergreen forest with bamboo and *Pinus khesyia*. Very rare at elevation 700 - 750 m.

Distribution: VIETNAM (Dak Nong Province Dak Glong District).

Note: *Thismia annamensis* may be compared solely with *T. racemosa* Ridley once collected in Malacca Peninsula (near Pahang). According to the treatment by F. P. Jonker (1948), new species belongs to Sect. *Euthismia* Schlechter, Subsect. *Odoardoa* Schlechter. It differs in simple stems, long pedicels, twice larger flowers and in unequal sepal and petal lobes. A lone small colony of this very rare plant was found in shady humid wet place along forest trail. Hard persistent attempts to find more specimens were fruitless.

***Thismia tentaculata* K. Larsen et Aver., sp. nov.**

Figs 4,5

T. javanicae J. J. Smith et *T. arachniti* Ridley affinis, a qua differt, tubo perianthii laete albo, intra irregulariter manicato-ruguloso sine transtris

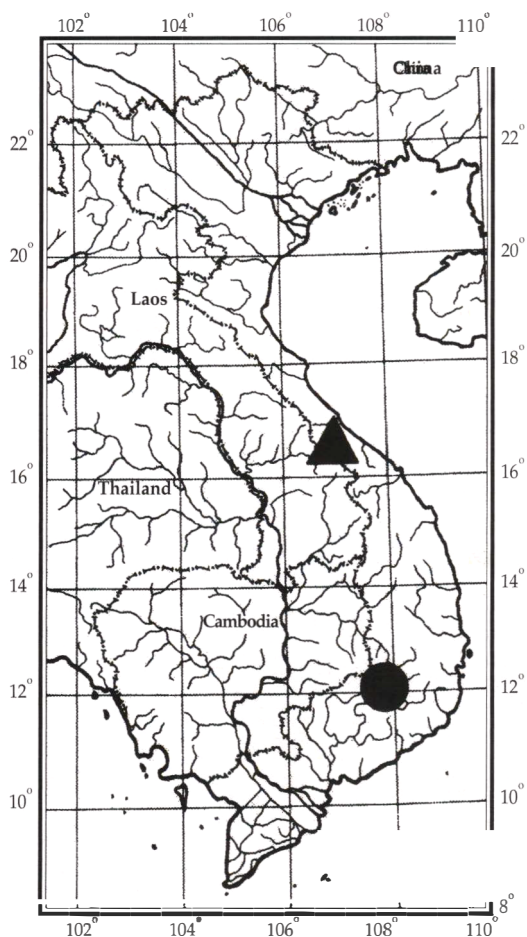


Figure 3. Localities of *Thismia annamensis* (●) and *T. tentaculata* (▲) in Vietnam.

transversalibus, apicibus filamentorum bidentatis, glabris, lobis stigmatibus ovatis, ad apicem retusis.

Type: VIETNAM, Quang Tri Prov., Da Krong Distr., Huc Nghi Municipality, in vicinities of La To village around point 16° 29' 16" N 107° 00' 32" E at elevation about 414 m., 26 March 2006, L. Averyanov, P. V. The et al., HLF 6251 (Holotype, LE). d-EXSICCATES OF VIETNAMESE FLORA 0058/HLF 6251.

Small achlorophyllous mycotrophic herb. Roots a few, light brown, fleshy, vermiform, clustering at the base of stem. *Stem* white, simple, glabrous, erect or ascending, 2-7 cm tall with a few distant bract-like leaves and 1-3 terminal flowers. *Leaves and floral bracts* white, narrowly triangular, acute, adpressed to the stem, 2-8 mm long, 0.5-2 mm wide. *Ovary and pedicel* white, 6-8 mm long, conical, longitudinally finely grooved and irregularly dentate along ribs. *Flowers* actinomorphic, urceolate, of 6 tepals fused to form a basal perianth tube, free apically; perianth tube broadly conical to obovate, 8-12 mm long, 5-7 mm wide near the apex, pure white, longitudinally finely grooved with 12 low rough ribs, inside with finely



Figure 4. *Thismia tentaculata* K.Larsen et Aver – a,b. Flowering plant; c,d. Flower, side view and view from top; e,f. Longitudinal section of flower and ovary; g. Base of stem and roots; h. Fruiting plant; i. Ripening fruit, view from top (all photographs made from the type by Leonid V. Averyanov).

irregular manicate-rugulose surface without transverse bars, at the apex with broad, prominent, fleshy, brightly yellow annulus; free parts of outer perianth lobes of nearly isosceles triangle form, 1.8-

2.4 mm long, light yellowish with broadly obtuse or rounded apex; free parts of inner perianth lobes triangular with broad light yellowish base 2.5-3 mm wide, tapering at apex into long, red, filiform,

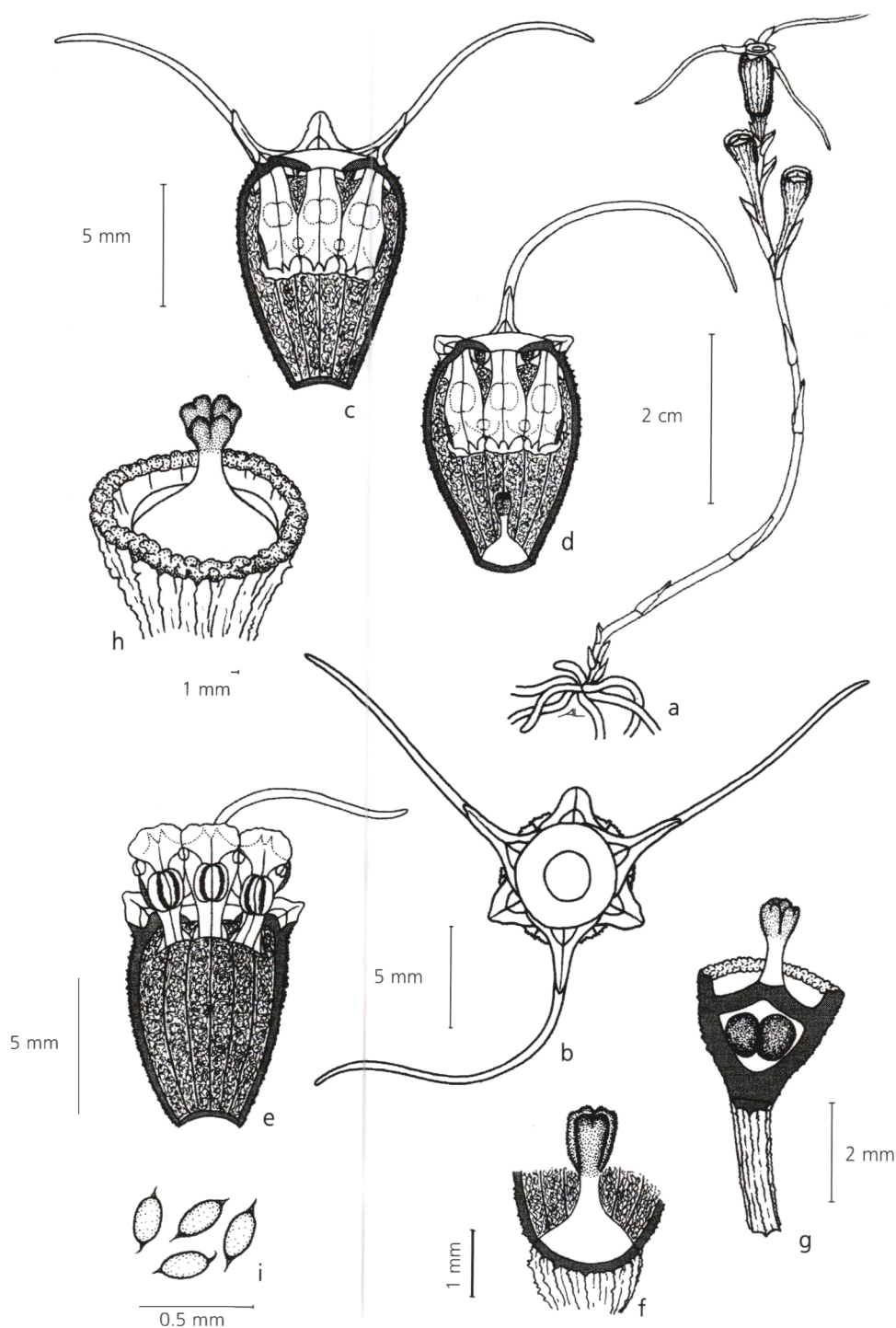


Figure 5. *Thismia tentaculata* K.Larsen et Aver. – a. Flowering plant; b. Flower, view from the top; c, d. Longitudinal section of the flower; e. Longitudinal section of the flower with recurved half of stamen tube; f. Ovary; g. Longitudinal section of ovary; h. Ripening fruit; i. Seeds (all drawn from the type by Leonid V. Averyanov).

tentacle-like 14-16 mm long process with articulation near the base; filaments 6, arising from thickened margin of the perianth tube, down curved, connate together into an anther tube 4.5-5 mm long, hanging at an annulus in the perianth throat; individual filaments white, yellow at the base, broad, ribbon-like at the apex with two distinct teeth without papillae, bearing at the middle large anther with two thecae and laterally with two round glands; on inner side of filament, below anther, with broadly cordate petaloid appendage, wider than stamen, finely crenulate along margin; style white, thick, short, 1.2-1.6 mm long, cylindrical, persistent, bearing at apex 3 simple, hardly notched, finely papillose, ovate stigma-lobes; ovary white, obconical or obovoid; the 3 placentas inserted parietally in the basal part of the ovary. *Fruit* white to light brownish, fleshy cupule, crowned by the persistent, fleshy, basal ring of the perianth tube and the style with stigmas; seeds ellipsoid, 0.2-0.3 mm long, with short narrow processes of testa at poles.

Etymology: Plant name reflects the funny resemblance of inner perianth segment processes to tentacles of boiled shrimp.

Flowering: February-March.

Habitat: Primary broad-leaved evergreen lowland forest on montane hills composed with shale. Very rare, at elevation 400-500m.

Distribution: VIETNAM (Quang Tri Province, Da Krong District). **Fig. 3**

Note: According to the treatment of F. P. Jonker (1948) *Thismia tentaculata* belongs to Sect. *Euthismia* Schlechter, Subsect. *Brunonithismia* Jonk. This new species is most similar to *Thismia javanica* J. J. Smith distributed in Java and Sumatra and *T. arachnithes* Ridley in Malacca Peninsula. From these closely related species, *T. tentaculata* differs in bidentate

filaments without hairs at apex, finely irregular manicate-rugulose inner surface of perianth tube without transverse bars and in pure white perianth tube. Most probably, a lone record of the genus *Thismia* from Vietnam reported under the name *T. javanica* (Pham-Hoanh Ho, 2000) belongs to this new species. Only two specimens were found growing on a shady humid slope of small forest stream. Many days' attempts to find more specimens gave no results.

Acknowledgements

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